

Strict laws fail to deter illegal trade of China's largest and most endangered freshwater turtle

Shijia Hu^{1,2}, Tien Ming Lee³, Hai-Tao Shi¹

1 Ministry of Education Key Laboratory for Ecology of Tropical Islands, Key Laboratory of Tropical Animal and Plant Ecology of Hainan Province, College of Life Sciences, Hainan Normal University, Haikou 571158

2 Guangdong Key Laboratory of Animal Conservation and Resource Utilization, Guangdong Public Laboratory of Wild Animal Conservation and Utilization, Institute of Zoology, Guangdong Academy of Sciences, Guangdong 510260 China **3** State Key Laboratory of Biological Control, School of Life Sciences and School of Ecology, Sun Yat-sen University, Guangzhou, Guangdong 510275 China

Corresponding authors: Hai-Tao Shi (haitao-shi@263.net), Tien Ming Lee (leetm@mail.sysu.edu.cn)

Academic editor: Mark Auliya | Received 24 March 2022 | Accepted 24 March 2022 | Published 21 April 2022

<http://zoobank.org/D3420B94-4558-4051-8CC9-B355C81C36A1>

Citation: Hu S, Lee TM, Shi H (2022) Strict laws fail to deter illegal trade of China's largest and most endangered freshwater turtle. *Nature Conservation* 48: 95–97. <https://doi.org/10.3897/natureconservation.48.84287>

In May 2021, six people were arrested for the illegal wildlife trade (IWT) of one of the most endangered freshwater turtle species in China (Public Security News from Meizhou City Government 2021). An adult female *Pelochelys cantorii* (about 22.6kg and carapace length of 70cm) was poached in Meizhou, Guangdong province, and was sold for over 5,000 RMB (or about 770 USD). The turtle was advertised on Chinese social media, attracting huge public interest, which led to the arrest of the suspects by the Forestry Branch of the Public Security Bureau.

Unfortunately, the seized turtle, which was sent to S. Hu (first author) for expert identification, died soon after examination. According to Chinese national laws and the List of National Key Protected Animals in 2021, IWT offenders for this turtle species may be culpable for criminal charges, as well as estimated heavy fines of up to 1.5 million RMB (a value calculated based on the No. 5 Order of the Ministry of Agriculture and Rural Affairs of the People's Republic of China - Measures for valuation of aquatic wild animals and their products in 2019).

Shockingly, *P. cantorii* has been a Class I protected species (no trade allowed) in China for the last 32 years (Law of the People's Republic of China on the Protection of Wildlife in 1989), yet it was traded publicly on social media after being poached from a protected area. How did we fail in our efforts to prevent the illegal trade of this

threatened species despite it being listed as a protected species for three decades and China having one of the strictest penalties for IWT worldwide?

P. cantorii is one of the world's largest freshwater turtle species, weighing up to about 200kg and a carapace length of up to 130cm. Historically, *P. cantorii* was widely distributed throughout China but due to overexploitation for use in food and medicine, and native aquatic habitat loss, degradation and fragmentation (Lau and Shi 2000; Gu and Ma 2000), its population began to decline rapidly and was evaluated 'Endangered' in the IUCN Red List (IUCN 2000).

For instance, in the late 1990s, the Oujiang River Basin in Zhejiang Province recorded the largest population of about 80 individuals in Mainland China (Gu and Ma 2000). Another *P. cantorii* population at the Youxi River, Fujian Province, was observed to be threatened by freshwater habitat degradation due to pollution from industrial sewage and the building of hydro-electric dams (Ruan et al. 2001). As a result, the species was listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and was assessed as a 'Critically Endangered' species in the Chinese Species Red List (CITES 2003; Wang and Xie 2009). In the last 20 years, media reports regarding *P. cantorii* have brought news of illegal hunting and accidental bycatches (Kuang 2018; Jiang 2018).

Despite its high threat status, the fact that it is being illegally hunted, and its rare sighting in the wild, conservation efforts to protect *P. cantorii* have been underwhelming. And this is not to mention the critically low level of public awareness of its status (Hong et al. 2019) and the ineffective network of reserves in protecting Chelonian species (Gong et al. 2017; Gong et al. 2020). Although China has improved enforcement against IWT in the recent decade, this particular offense has highlighted the need to consider urgent conservation actions for *P. cantorii*.

We urge relevant Chinese authorities to reduce the impacts of the hydro-electric dams on freshwater habitats, as well as improve management of existing protected areas. A survey of villagers in the area of the river where there are *P. cantorii* revealed that more than three-quarters of the fishers believed that the dams reduce its population and the quantity of fish. At least 70% of the fishers also believed that the sewage from the factories along the river decrease the fish species richness and abundance, and that river pollution led to habitat destruction for *P. cantorii* (Hong 2020). We recommend that the authorities increase funding and resources in the protected areas, strengthen patrolling and enforcement, and prohibit any illegal fishing operations and habitat destruction activities. In some critical regions, advanced technological applications such as drone aerial photography and infrared camera monitoring could be introduced to deter and reduce poaching and illegal activities.

Authorities should certainly consider increasing the scale and effectiveness of public awareness about the illegality and penalties associated with IWT. When the public's legal and conservation awareness is low and weak, law-breakers, when driven by economic interests, would risk breaking the law to poach even highly protected animals in the reserves, and blatantly trade them on social media publicly. A questionnaire survey among villagers in the areas where the turtle is distributed shows that 63.6% of the coastal villagers do not know the species, and only 15.2% of the fishermen have seen the species, and most of these incidences happened more than a decade ago (Hong 2020).

Current priorities should include increasing the public's awareness regarding the legal consequences of actions, raising the public's awareness of conservation, so that they may be socially engaged, and consciously resist, and actively report relevant illegal acts. Unless China meets the urgent conservation needs of this iconic species, the extinction of this species will likely not be averted (Wang et al. 2021).

Acknowledgements

H.S. receives funding from the National Natural Science Foundation of China (32170532).

References

CITES (2003) CITES Appendix. <http://www.cites.org/eng/app/index.shtml>

Gong S, Shi H, Jiang A, Fong J, Gaillard D, Wang J (2017) Disappearance of endangered turtles within China's nature reserves. *Current Biology* 27(5): R170–R171. <https://doi.org/10.1016/j.cub.2017.01.039>

Gong S, Wu J, Gao Y, Fong J, Parham J, Shi H (2020) Integrating and updating wildlife conservation in China. *Current Biology* 30(16): R915–R919. <https://doi.org/10.1016/j.cub.2020.06.080>

Gu H, Ma X (2000) The soft-shelled turtle, *Pelochelys bibroni* in China: Its historical distribution and current situation – comment on the protective methods of *Pelochelys bibroni* of Oujiang River basin. *Journal of Hangzhou Normal University* 3: e45. [Humanities and Social Sciences]

Hong X, Cai X, Chen C, Liu X, Zhao J, Qiu Q, Zhu X (2019) Conservation Status of the Asian Giant Softshell Turtle (*Pelochelys cantorii*) in China. *Chelonian Conservation and Biology* 18(1): e68. <https://doi.org/10.2744/CCB-1365.1>

Hong X (2020) A study on conservation biology of endangered freshwater turtle *Pelochelys cantorii*. Shanghai Ocean University Doctoral Thesis, 99 pp.

IUCN (2000) IUCN Red List of Threatened Species. IUCN, Gland. <http://www.iucnredlist.org>

Jiang G (2018) Notes about the 'Yuan'. China Science Net. <https://news.sciencenet.cn/sbhtml-news/2018/4/334234.shtml> [accessed: 8 February 2022] [in Chinese]

Kuang C (2018) The main effects of Gaobei Water Control Project on *Pelochelys bibroni* and its protection measures. *Environmental Development* 4: e197. [in Chinese]

Lau M, Shi H (2000) Conversation and trade of terrestrial and freshwater turtles and tortoises in the People's Republic of China. *Chelonian Research Monograph* 2: e30.

Public Security News from Meizhou City Government (2021) "Reselling" the national first-class endangered protected animal "Yuan". https://www.meizhou.gov.cn/zwgk/zfjg/sgaj/jwzx/content/post_2176509.html [accessed 8 February 2022] [in Chinese]

Ruan D, Su X, Chen X, Zhou M, Lian K, Wu J (2001) Investigation of Present Situation of Large Soft-shelled Turtle (*Pelochelys bibroni*) at Youxi River in Fujian Province. *Dongwuxue Zazhi* 36: e42. [in Chinese]

Wang S, Xie Y (2009) China Species Red List. Higher Education Press. [in Chinese]

Wang J, Parham J, Shi H (2021) China's turtles need protection in the wild. *Science* 371(6528): e473. <https://doi.org/10.1126/science.abg3541>